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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,452	09/11/2000	Mitsuhiro Kasahara	P19962	2175

7055 7590 08/06/2004

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
EISEN, ALEXANDER	
ART UNIT	PAPER NUMBER
2674	9

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/623,452	KASAHARA ET AL.	
	Examiner	Art Unit	
	Alexander Eisen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 17* is/are rejected.

7)☒ Claim(s) *2-16 and 18-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Applicant's amendment filed on 02 October 2003.

2. Claims 1-32 are pending in present application.

Drawings

3. Applicant's traverse in regards to draftsman's objection to the drawings is acknowledged. The tables 1-10 are placed at the pages 26-35 of the specification, i.e. where they belong, so they would not appear in a patent publication along with the drawings. Applicant should be reminded though that the tables should conform to 37 C.F.R. §1.58, and they probably would not appear in the publication as presented, because a common patent typeset will be used rather than an original graphics. Converting tables into the figures (of tables) would preserve the original graphics, but then the tables will be placed among the figures.

Specification

4. The incorporation of essential material in the specification by reference to a foreign application or patent (page 7, lines 7-9), or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

5. The disclosure is objected to because of the following informalities: "23" in line 21 on page 16 apparently should read as --32--.

Appropriate correction is required.

Claim Objections

6. Claim 1 is objected to because of the following informalities: claim 1 recites as amended "a converter for selectively converting the gray scale level of the pixel to one gray scale level in one of a first gray scale group and one gray scale level in a second gray scale group", which was apparently meant to be -- a converter for selectively converting the gray scale level of the pixel to one of a gray scale level in ~~one of~~ a first gray scale group and ~~one~~ a gray scale level in a second gray scale group--. Compare for instance with a related method claim 17 language, which characterizes claim and an essence of the invention, in examiner's opinion, more correctly and in better form. Also, adding the word "light" after a second occurrence of "emit" in line 3 of claims 1 and 17 will express the invention more clearly. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1 and 17 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Otobe et al., (hereinafter Otobe), US 6,144,364 (reference provided by the applicant in IDS, paper #4).

With respect to claim 1 Otobe discloses a display apparatus for performing gray scale display by dividing one field of an image into a plurality of weighted subfields (FIG. 16) and by controlling each subfield to one of emit and not emit light based on a gray scale level of a pixel

in the image, the apparatus comprising a converter (FIG. 20) for selectively converting the gray scale level of the pixel to one of a gray scale in a first gray scale group (upper m bits) and a gray scale level in a second gray scale group, the first gray scale group including a plurality of gray scale levels to be used for actual display, the first gray scale group being expressed by a combination of the subfields, and the second gray scale group including a plurality of gray scale levels each of which interspersed in the gray scale levels in the first gray scale group; and a first diffuser 33 (FIG. 20) for generating a video signal displaying a gray scale level obtained by the converter when the is in the first gray scale group, and when a gray scale level obtained by the converter is in the second group, the diffuser generating a video signal displaying a gray scale level obtained by diffusing a predetermined value corresponding to the gray scale level in the second gray scale group.

The first gray scale group consists of bit combinations when only upper m bits are significant and all lower bits are equal 0; the second gray scale group consists of the combination when at least one bit in the lower n-m bits is not equal 0, therefore the gray scale levels of the second gray scale group being interspersed in between the gray scale levels of the first group. The input n bits represent original 2^n gray scale levels, which are converted by the converter (separator 21) into two groups of gray scale, the first one with 2^m gray scale levels presented by upper m bits for actual display (displaying m bits output from the diffuser 33), and the second group with 2^{n-m} gray scale levels. The gray scale levels from the second group are not being displayed directly but rather diffused into the first group and therefore represented by the first group. When the original n bits fall into the first group (all lower n-m bit are equal 0), then the video signal produced by the diffuser 33 will be based on the gray scale level of the first group,

when the original n bit video signal fall into the second group (in between the levels of the first group - at least one of the bits of the lower n-m bit is not equal 0), then the video signal produced by the diffuser 33 will still be represented by the gray level of the first group, but the value within the first group will be corrected by the diffusing the predetermined value (CARRY) corresponding to the gray scale level of the second gray scale group (note that this value, CARRY in FIG. 20, inputted to the diffuser 33 is based on the lower n-m bits and some delayed values of preceding pixels in the same and preceding lines, therefore corresponding to the gray scale of the second group). See FIGS. 17, 20-22; col. 19, line 7 - col. 20, line 44. The gray scale levels of the first gray scale group are shown as steps in the FIG. 21, while the gray levels of the second gray scale group are presented by the solid line connecting the steps, the levels of the second group being dispersed in between the eight levels of the first group.

As to claim 17, Otobe discloses a method for performing a gray scale display by dividing one field of an image into a plurality of weighted subfields (FIG. 16) and by controlling each subfield to one of emit and not emit light based on a gray scale level of a pixel in the image, the method comprising selectively converting the gray scale level of the pixel to one of a gray scale in a first gray scale group (upper m bits) and a gray scale level in a second gray scale group, the first gray scale group including a plurality of gray scale levels to be used for actual display, the first gray scale group being expressed by a combination of the subfields, and the second gray scale group including a plurality of gray scale levels each of which interspersed in the gray scale levels in the first gray scale group; generating a video signal displaying a gray scale level obtained by the converter when the is in the first gray scale group, and when a gray scale level obtained by the converter is in the second group, generating a video signal displaying a gray

scale level obtained by diffusing a predetermined value corresponding to the gray scale level in the second gray scale group. See also discussion related to claim 1 above.

Allowable Subject Matter

9. Claims 2-26 and 18-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: there was no prior art found by the examiner that either individually or in combination with the cited prior art teaches or suggests the combination of the limitations of the above dependent claims including the limitations of the claims which they are dependent upon.

Response to Arguments

10. Applicant's arguments with respect to claims 1 and 17 have been considered but are moot in view of the new ground(s) of rejection. The rejection based on Kanazawa reference are withdrawn.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. **Okano, US 6,025,818,** discloses a method for correcting pixel data by selectively divining gray scale levels into two groups, one of those having sharp transitions and being corrected by using a diffuser.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is (703) 306-2988. The examiner can normally be reached on M-F (8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexander Eisen
Primary Examiner
Art Unit 2674

8/4/04